

CLAIMS

1. An isolated DNA molecule comprising a coding sequence of a yeast gene selected from the group of NORF genes comprising a SAGE tag as shown in SEQ ID NOS:67-811.
- 5 2. The isolated DNA molecule of claim 1, which is involved in cell cycle progression.
3. The isolated DNA molecule of claim 2 wherein expression of the NORF gene varies by at least 10% between any two phases of the cell cycle selected from the group consisting of: log phase, S phase, and G2/M.
- 10 4. The isolated DNA molecule of claim 2 wherein expression of the NORF gene varies by at least 25% between any two phases of the cell cycle selected from the group consisting of: log phase, S phase, and G2/M.
5. The isolated DNA molecule of claim 2 wherein expression of the NORF gene varies by at least 50% between any two phases of the cell cycle selected from the group consisting of: log phase, S phase, and G2/M.
- 15 6. The isolated DNA molecule of claim 2 wherein expression of the NORF gene varies by at least 100% between any two phases of the cell cycle selected from the group consisting of: log phase, S phase, and G2/M.
7. The isolated DNA molecule of claim 2 wherein expression of the NORF gene varies by a statistically significant difference (greater than 95% confidence level) between any two phases of the cell cycle selected from the group consisting of: log phase, S phase, and G2/M.
- 20 8. The isolated DNA molecule of claim 7 wherein the NORF gene is selected from the group consisting of NORF N^o 1, 2, 4, 5, 6, 17, 25, and 27.
- 25 9. The isolated DNA molecule of claim 2 wherein the NORF gene is not expressed in at least one phase of the cell cycle selected from the group consisting of: log phase, S phase, and G2/M.
10. The isolated DNA molecule of claim 1 which is genomic.
11. The isolated DNA molecule of claim 1 which is cDNA.
- 30 12. A method of using NORF genes to affect the cell cycle, comprising the

step of:

administering to a cell an isolated DNA molecule comprising a coding sequence of a NORF gene whose expression varies by at least 10% between any two phases of the cell cycle selected from the group consisting of log phase, S phase, and G2/M.

13. The method of claim 12 wherein the cell is a yeast cell.

14. The method of claim 12 wherein the cell is a fungal cell.

15. The method of claim 12 wherein the cell is a mammalian cell.

16. The method of claim 12 wherein the NORF gene is selected from the group consisting of NORF N^o 1, 2, 4, 5, 6, 17, 25, and 27.

17. A method for screening candidate antifungal drugs, comprising the steps of:

contacting a test substance with a yeast cell;

monitoring expression of a NORF gene whose expression varies by at least 10% between any two phases of the cell cycle selected from the group consisting of log phase, S phase, and G2/M, wherein a test substance which modifies the expression of the yeast gene is a candidate antifungal drug.

18. The method of claim 17 wherein the NORF gene is selected from the group consisting of NORF N^o 1, 2, 4, 5, 6, 17, 25, and 27.

19. A method for identifying human genes which are involved in cell cycle progression, comprising the steps of:

contacting human DNA with a probe which comprises at least 10 contiguous nucleotides of a NORF gene whose expression varies by at least 10% between any two phases of the cell cycle selected from the group consisting of log phase, S phase, and G2/M phase, wherein a human DNA sequence which hybridizes to the probe is identified as a sequence of a candidate human gene which is involved in cell cycle progression.

20. The method of claim 19 wherein the NORF gene is selected from the group consisting of NORF N^o 1, 2, 4, 5, 6, 17, 25, and 27.

21. A probe comprising at least 14 contiguous nucleotides of a NORF gene comprising a SAGE tag as shown in SEQ ID NOS:67-811.

22. The probe of claim 21 wherein expression of the NORF gene varies by at least 10% between any two phases of a cell cycle selected from the group consisting of: log phase, S phase, and G2/M.

5 23. The probe of claim 22 wherein expression of the NORF gene varies by at least 25% between any two phases of the cell cycle selected from the group consisting of: log phase, S phase, and G2/M.

24. The probe of claim 22 wherein expression of the NORF gene varies by at least 50% between any two phases of the cell cycle selected from the group consisting of: log phase, S phase, and G2/M.

10 25. The probe of claim 22 wherein expression of the NORF gene varies by at least 100% between any two phases of the cell cycle selected from the group consisting of: log phase, S phase, and G2/M.

15 26. The probe of claim 22 wherein the NORF gene is not expressed in at least one phase of the cell cycle selected from the group consisting of: log phase, S phase, and G2/M.

27. The probe of claim 22 wherein expression of the NORF gene varies by a statistically significant difference (greater than 95% confidence level) between any two phases of the cell cycle selected from the group consisting of: log phase, S phase, and G2/M.

20 28. The probe of claim 22 wherein the gene is selected from the group consisting of NORF N° 1, 2, 4, 5, 6, 17, 25, and 27.

29. The method of claim 17 wherein said step of monitoring expression is performed using nucleic acid molecules which are immobilized on a solid support.

25 30. The method of claim 29 wherein the nucleic acid molecules are in on array.

31. The method of claim 19 wherein a probe which comprises a portion of the NORF gene is in an array on a solid support.

32. An array of probes on a solid support wherein at least one probe comprises at least 14 contiguous nucleotides of a NORF gene comprising a SAGE tag as shown in SEQ ID NOS:67-811.

33. The array of claim 32 wherein the at least one NORF gene is involved

in cell cycle progression.

34. The array of claim 32 wherein the NORF gene is selected from the group consisting of NORF No. 1, 2, 4, 5, 6, 17, 25, and 27.

35. The array of claim 32 which comprises at least 100 probes of distinct sequence.

36. The array of claim 32 which comprises at least 500 probes of distinct sequence.

37. The array of claim 32 which comprises at least 1,000 probes of distinct sequence.

10 38. A method of identifying a candidate drug as a member of a class of drugs having a characteristic effect on gene expression in a yeast cell, comprising the steps of:

contacting a yeast cell with a candidate drug; and

15 monitoring expression in the yeast cell of at least one NORF gene whose expression is affected by the class of drugs, wherein detection of a difference in expression of the at least one NORF gene in the yeast cell relative to expression in the absence of the candidate drug identifies the candidate drug as a member of the class of drugs.

20 39. The method of claim 38 wherein the step of monitoring expression is performed using nucleic acid molecules which are immobilized on a solid support.

40. The method of claim 39 wherein the nucleic acid molecules are in an array.

41. The method of claim 38 wherein expression of two or more NORF genes is monitored.

25 42. The probe of claim 21 which is immobilized on a solid support.

add a'7